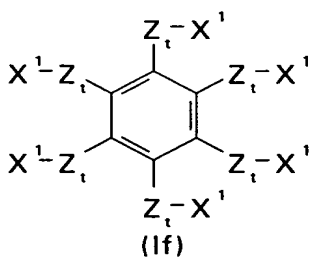
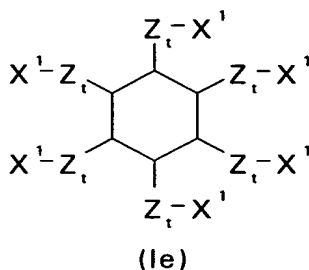
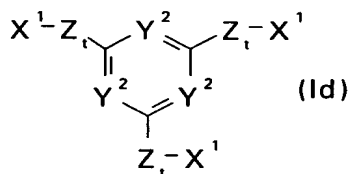
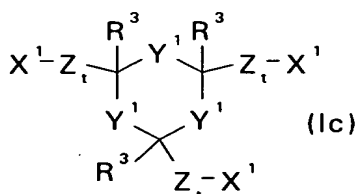
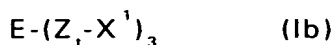
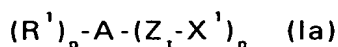


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wherein: A is silicon; E is nitrogen or P(O); R<sup>1</sup> and R<sup>3</sup> are each independently hydrogen, alkyl, aryl, aralkyl, heteroaryl, heteroaralkyl, heterocyclyl or heterocyclalkyl; p is 0 or 1; Z is any combination of 1-12 units selected from 1,4-phenylene and methylene units, which units may be combined in any order, with the proviso that if the LPC is of formula (Ia) or (Ib), then Z contains at least two phenylene or methylene units; t is 1; X<sup>1</sup> is OH, SH, NH<sub>2</sub>, COR<sup>5</sup> or COOR<sup>4</sup> where R<sup>4</sup> is selected from hydrogen, alkyl, aryl, aralkyl, heteroaryl, heteroaralkyl, heterocyclyl and heterocyclalkyl, and R<sup>5</sup> is halide, heteroaryl or pseudohalide; n is 3 or 4; Y<sup>1</sup> is CH<sub>2</sub>, NH, S or O; Y<sup>2</sup> is selected from CH and N; R<sup>1</sup>, R<sup>3</sup>, X<sup>1</sup>, Y<sup>1</sup>, Y<sup>2</sup> and Z are unsubstituted or substituted with one or more substituents each independently selected from Q; and Q is halogen, hydroxy, nitrile, nitro, formyl, mercapto, carboxy, alkyl, haloalkyl, polyhaloalkyl, aminoalkyl, diaminoalkyl, alkenyl containing 1 to 2 double bonds, alkynyl containing 1 to 2 triple bonds, cycloalkyl, cycloalkylalkyl, aryl, heteroaryl, arylalkyl, heteroarylalkyl, alkylidene, arylalkylidene, alkylcarbonyl, arylcarbonyl, heteroarylcarbonyl, alkoxycarbonyl, alkoxycarbonylalkyl, aryloxycarbonyl, aryloxycarbonylalkyl, aminocarbonyl, alkyl-aminocarbonyl, dialkylaminocarbonyl, arylaminocarbonyl, diarylaminocarbonyl,

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C<sup>1</sup>  
concl'd  
arylalkylaminocarbonyl, alkoxy, aryloxy, perfluoroalkoxy, alkenyloxy, alkynyloxy, arylalkoxy, amino, aminoalkyl, alkylaminoalkyl, dialkylaminoalkyl, arylaminoalkyl, diarylaminoalkyl, alkylamino, dialkylamino, arylamino, diarylamino, alkylaryl amino, alkylcarbonylamino, alkoxycarbonylamino, arylcarbonylamino, aryloxy carbonylamino, azido, alkylthio, arylthio, perfluoroalkylthio, thiocyano, isothiocyano, alkylsulfinyl, alkylsulfonyl, arylsulfinyl, arylsulfonyl, aminosulfonyl, alkylaminosulfonyl, dialkylaminosulfonyl, arylaminosulfonyl or diarylaminosulfonyl.

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C<sup>2</sup>  
9. (Amended Twice) The LPC of claim 6, wherein: E is nitrogen.

10. (Amended Twice) The LPC of claim 6, wherein the LPC has formula (IIb):

C<sup>3</sup>  
$$N-(Z_1-X^1)_3 \quad (IIb).$$

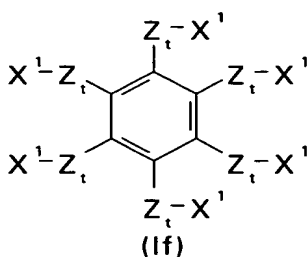
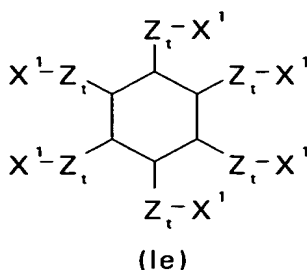
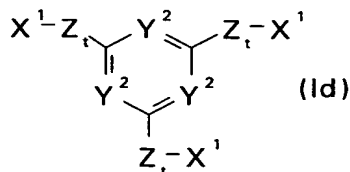
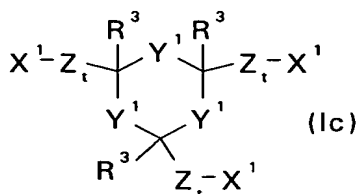
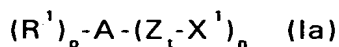
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C<sup>3</sup>  
11. (Amended) The LPC of claim 6, wherein p is 0 and n is 4.

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C<sup>4</sup>  
39. (Amended Twice) A method of solution phase biopolymer synthesis, comprising the steps of:

(a) reacting an LPC with a first monomer N<sup>1</sup>; wherein the LPC has formulae (I):



CH  
contd

wherein: A is silicon; E is nitrogen or P(O); R<sup>1</sup> and R<sup>3</sup> are each independently hydrogen, alkyl, aryl, aralkyl, heteroaryl, heteroaralkyl, heterocyclyl or heterocyclylalkyl; p is 0 or 1; Z is any combination of 0-12 units selected from 1,4-phenylene and methylene, which units may be combined in any order; t is 0 or 1; X<sup>1</sup> is OH, SH, NH<sub>2</sub>, COR<sup>5</sup> or COOR<sup>4</sup>, where R<sup>4</sup> is selected from hydrogen, alkyl, aryl, aralkyl, heteroaryl, heteroaralkyl, heterocyclyl and heterocyclylalkyl; and R<sup>5</sup> is halide, heteroaryl or pseudohalide; n is 3 or 4; Y<sup>1</sup> is CH<sub>2</sub>, NH, S or O; Y<sup>2</sup> is selected from CH and N; R<sup>1</sup>, R<sup>3</sup>, X<sup>1</sup>, Y<sup>1</sup>, Y<sup>2</sup> and Z are unsubstituted or substituted with one or more substituents each independently selected from Q; and Q is halogen, hydroxy, nitrile, nitro, formyl, mercapto, carboxy, alkyl, haloalkyl, polyhaloalkyl, aminoalkyl, diaminoalkyl, alkenyl containing 1 to 2 double bonds, alkynyl containing 1 to 2 triple bonds, cycloalkyl, cycloalkylalkyl, aryl, heteroaryl, arylalkyl, heteroarylalkyl, alkylidene, arylalkylidene, alkylcarbonyl, arylcarbonyl, heteroarylcarbonyl, alkoxy carbonyl, alkoxy carbonyl-alkyl, aryloxy carbonyl, aryloxy carbonylalkyl, aminocarbonyl, alkylaminocarbonyl, dialkylaminocarbonyl, arylaminocarbonyl, diarylaminocarbonyl, arylalkylaminocarbonyl, alkoxy, aryloxy, perfluoroalkoxy, alkenyloxy, alkynyloxy, arylalkoxy,

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amino, aminoalkyl, alkylaminoalkyl, dialkylaminoalkyl, arylaminoalkyl, diarylaminoalkyl, alkylamino, dialkylamino, arylamino, diarylamino, alkylaryl amino, alkylcarbonylamino, alkoxycarbonylamino, arylcarbonylamino, aryloxy carbonylamino, azido, alkylthio, arylthio, perfluoroalkylthio, thiocyano, isothiocyano, alkylsulfinyl, alkylsulfonyl, arylsulfinyl, arylsulfonyl, aminosulfonyl, alkylaminosulfonyl, dialkylaminosulfonyl, arylaminosulfonyl or diarylamino-sulfonyl;

(b) separating and purifying the product of step (a);

(c) reacting the product of step (b) with a second monomer  $N^2$ , a dimer  $N^2-N^3$  or a trimer  $N^2-N^3-N^4$ ; and

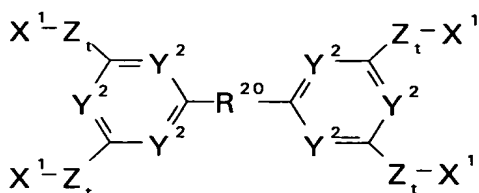
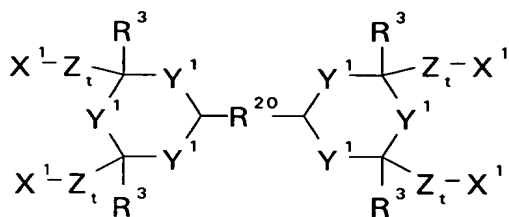
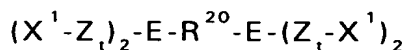
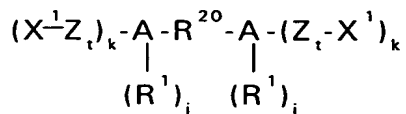
(d) repeating steps (b) and (c) to produce an LPC-bound biopolymer having m monomers, where m is 3 to 100, wherein:

$N^1$ ,  $N^2$ ,  $N^3 \dots N^m$  are biopolymer monomers; and

the dimers and trimers comprise the monomers.

45. (Amended Twice) A liquid phase carrier (LPC) that has formulae:

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wherein: A is silicon; E is nitrogen or P(O); R<sup>1</sup> and R<sup>3</sup> are each independently hydrogen, alkyl, aryl, aralkyl, heteroaryl, heteroaralkyl, heterocyclyl or heterocyclylalkyl; Z is any combination of 1-12 units selected from 1,4-phenylene and methylene, which units may be combined in any order, with the proviso that if the LPC is of formula (Ia) or (Ib), then Z contains at least two phenylene or methylene units; t is 0 or 1; X<sup>1</sup> is OH, SH, NH<sub>2</sub>, COR<sup>5</sup> or COOR<sup>4</sup>, where R<sup>4</sup> is selected from hydrogen, alkyl, aryl, aralkyl, heteroaryl, heteroaralkyl, heterocyclyl and heterocyclylalkyl; and R<sup>5</sup> is halide, heteroaryl or pseudohalide; Y<sup>1</sup> is CH<sub>2</sub>, NH, S or O; Y<sup>2</sup> is selected from CH and N; R<sup>1</sup>, R<sup>3</sup>, X<sup>1</sup>, Y<sup>1</sup>, Y<sup>2</sup> and Z are unsubstituted or substituted with one or more substituents each independently selected from Q; and Q is halogen, hydroxy, nitrile, nitro, formyl, mercapto, carboxy, alkyl, haloalkyl, polyhaloalkyl, aminoalkyl, diaminoalkyl, alkenyl containing 1 to 2 double bonds, alkynyl containing 1 to 2 triple bonds, cycloalkyl, cycloalkylalkyl, aryl, heteroaryl, arylalkyl,

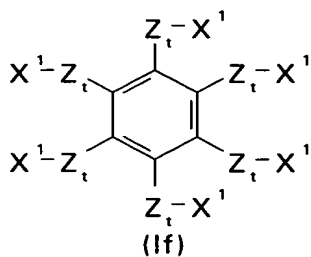
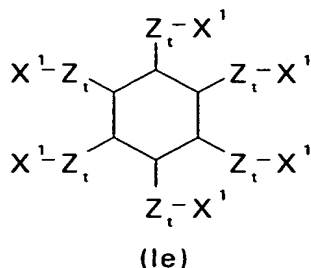
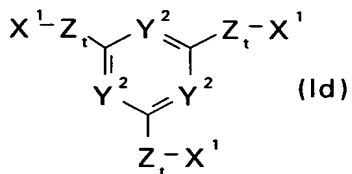
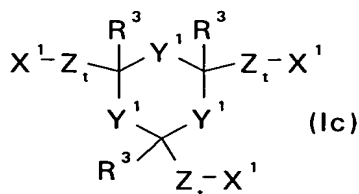
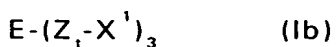
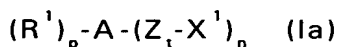
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heteroarylalkyl, alkylidene, arylalkylidene, alkylcarbonyl, arylcarbonyl, heteroarylcarbonyl, alkoxycarbonyl, alkoxycarbonylalkyl, aryloxy, aryloxy, aryloxy, aryloxy, aminocarbonyl, alkylaminocarbonyl, dialkylaminocarbonyl, arylaminocarbonyl, diarylamino, arylalkylaminocarbonyl, alkoxy, aryloxy, perfluoroalkoxy, alkenyloxy, alkynyloxy, arylalkoxy, amino, aminoalkyl, alkylaminoalkyl, dialkylaminoalkyl, arylaminoalkyl, diarylaminoalkyl, alkylamino, dialkylamino, arylamino, diarylamino, alkylarylamino, alkylcarbonylamino, alkoxycarbonylamino, arylcarbonylamino, aryloxy, aryloxy, aryloxy, aryloxy, azido, alkylthio, arylthio, perfluoroalkylthio, thiocyno, isothiocyano, alkylsulfinyl, alkylsulfonyl, arylsulfinyl, arylsulfonyl, aminosulfonyl, alkylaminosulfonyl, dialkylaminosulfonyl, arylaminosulfonyl or diarylamino, arylaminosulfonyl;  $R^{20}$  is alkylene, alkenylene, alkynylene, arylene or heteroarylene; k 2 or 3; and j is 0 or 1.

48. (Amended Twice) A method of solution phase biopolymer synthesis, comprising the steps of:

(a) reacting an LPC with a first monomer  $N^1$ ; wherein the LPC has formulae (I):

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wherein: A is silicon; E is nitrogen or P(O); R<sup>1</sup> and R<sup>3</sup> are each independently hydrogen, alkyl, aryl, aralkyl, heteroaryl, heteroaralkyl, heterocyclyl or heterocyclylalkyl; p is 0 or 1; Z is any combination of 0-12 units selected from 1,2-, 1,3- or 1,4-phenylene and alkylene, which units may be combined in any order; t is 0 or 1; X<sup>1</sup> is OH, SH, NH<sub>2</sub>, COR<sup>5</sup> or COOR<sup>4</sup>, where R<sup>4</sup> is selected from hydrogen, alkyl, aryl, aralkyl, heteroaryl, heteroaralkyl, heterocyclyl and heterocyclylalkyl; and R<sup>5</sup> is halide, heteroaryl or pseudohalide; n is 3 or 4; Y<sup>1</sup> is CH<sub>2</sub>, NH, S or O; Y<sup>2</sup> is selected from CH and N; R<sup>1</sup>, R<sup>3</sup>, X<sup>1</sup>, Y<sup>1</sup>, Y<sup>2</sup> and Z are unsubstituted or substituted with one or more substituents each independently selected from Q; and Q is halogen, hydroxy, nitrile, nitro, formyl, mercapto, carboxy, alkyl, haloalkyl, polyhaloalkyl, aminoalkyl, diaminoalkyl, alkenyl containing 1 to 2 double bonds, alkynyl containing 1 to 2 triple bonds, cycloalkyl, cycloalkylalkyl, aryl, heteroaryl, arylalkyl, heteroarylalkyl, alkylidene, arylalkylidene, alkylcarbonyl, arylcarbonyl, heteroarylcarbonyl, alkoxycarbonyl, alkoxycarbonylalkyl, aryloxycarbonyl, aryloxycarbonylalkyl, aminocarbonyl, alkylaminocarbonyl, dialkylaminocarbonyl, arylaminocarbonyl, diarylaminocarbonyl, arylalkylaminocarbonyl, alkoxy, aryloxy, perfluoroalkoxy, alkenyloxy, alkynyloxy,